

EXPOSURE ON SEPTEMBER 2, AND 3, 1974 OF
FIVE PERSONS TO RESIDUES OF GUTHION AND ZOLONE IN
A GRAPE VINEYARD IN FRESNO COUNTY CALIFORNIA
(ANDREOTTI VINEYARD PESTICIDE EPISODE)

HS-139 November 15, 1974

First Nine Page Summary

By

Dr. Richard N. Lyness, Research Specialist
Arcadio A. Viveros, Research Assistant
COMMUNITY STUDIES ON PESTICIDES--FRESNO STUDY
State Department of Health

18 Page Appendix

By

Keith T. Maddy, Staff Toxicologist
Kimber Hentchel, Agricultural Inspector
Lori Peterson, Agricultural Inspector

California Department of Food and Agriculture
Division of Pest Management, Environmental
Protection and Worker Safety
Worker Health and Safety Branch
1220 N Street, Sacramento, California 95814

Andreotti Vineyard Pesticide Episode

Summary By
California Department of Health

I. Who

A. [REDACTED]

No Social Security Number
Age 39 (9/19/35), Mexican National, Male, Married

B. [REDACTED]

Same address
No Social Security Number
Age 35 (3/22/38) Mexican National, Male, Married

C. Others in crew, not reported ill:

[REDACTED]

II. What

A. Symptoms

1. Description - Nausea, vomiting, dizziness, abdominal cramps, and diarrhea.
2. Duration - All symptoms except dizziness subsided prior to reaching medical attention.

B. Diagnostic Tests

1. Cholinesterase determination
 - a. Fresno Community Hospital (pH Stat)
 - b. Carlson Medical Laboratory (Modified pH Stat)
3770 North First Street
Fresno, CA 93726
Tel. (209) 222-1345

2. Results

See Table 1

C. Treatment

1. Physician: Emergency Medical Staff
Fresno Community Hospital
Fresno & R Streets
Fresno, CA 93715
Tel. (209) 233-0911

2. Hospital: same
3. Medication: none
4. Length of absence from work: none

III. When

- A. Date of exposure - crew entered Andreotti Vineyard on September 2, 1974.
- B. Date and time of symptoms - symptoms developed on evening of September 3, 1974.
- C. Date and time of treatment - patients reported to emergency room at 10:43 A.M. on September 4, 1974.
- D. Date reported
 1. Reported by telephone to Fresno County Agricultural Commissioner on September 5, 1974.
 2. Report received by Fresno Project Staff on September 6, 1974 from Agricultural Commissioner's staff.
 3. Doctor's first report of work injury on September 17, 1974.

IV. Where

- A. Owner:
Adolpho Andreotti
14645 West Shields Avenue
Kerman, CA 93630
Tel. (209) 846-9565
 - B. Location:
Township 13S, Range 18E, NW corner of Section 30.
 - C. Employer:
Victor Belluomini
13405 West Shaw
Kerman, CA 93630
Tel. (209) 843-2407
- Type of business: Grower

V. Why

- A. Chemicals
 1. Guthion
 - a. Azinphosmethyl

b. Chemagro Guthion Spray Concentrate Crop Insecticide

c. EPA #3125-123AA

2. Zolone

a. Phosolone

b. Rhodia Zolone WP

c. EPA #359-626AA

B. Application

1. Method: ground

2. Equipment: speed sprayer

3. Dates applied (See Table 2)

Zolone: June 26, 27, 1974

Guthion: August 5, 1974

4. Crop: grapes

5. Pest: mites

6. Applicator:

James Scharf

15504 West Clinton Avenue

Kerman, CA 93630

Tel. (209) 846-7162

7. Climatic conditions

See Table 4

C. Safety Equipment

Not applicable

D. Other possible causes

Re-entry date (Guthion = 21 days) August 26, 1974

E. Other contributing factors (see narrative)

1. Previous exposure - none

2. General health

VI. Conclusion

A. Results

1. Environmental samples

See Table 3

2. Cholinesterase (See Table 1)

- a. Crew (September picking)

- b. Ephrian Ortega (October picking)

B. Action (See narrative)

1. Education - results of cholinesterase tests and interpretation supplied to Mr. Belluomini.
2. Enforcement - Andreotti Vineyard quarantined for additional 21 days.
3. Elias Lozano was restricted from October picking because of low cholinesterase level.
4. Cholinesterase level of one crew member (Ephrian Ortega) was monitored during October picking.

VII. Other

A. Participating Investigators

1. State Department of Food and Agriculture
2. Fresno County Agricultural Commissioner
3. Fresno Project, Community Pesticide Studies

B. Unanswered questions

1. Cause of initial illness
 - a. Unusually prolonged residue of Guthion.
 - b. Potentiation of Guthion and Zolone residues.
 - c. Error in application: no evidence available.

2. Reason for prolonged cholinesterase depression for Desidero Escobedo and Elias Lozano.
 - a. Exposure: See narrative and Table 4.
 - b. General health and nutrition.

Narrative

This is a more detailed report of a pesticide incident reported in summary in the August-September Progress Report #2. A crew of five Mexican Nationals were hired by Mr. Victor Belluomini to pick his vineyard of Thompson grapes. On September 2, 1974, he sent them to Mr. Adolpho Andreotti, his brother-in-law, to harvest his grape crop. After the second day, two of the five crew members, [REDACTED] and [REDACTED] became ill. When they informed Mr. Belluomini the next morning, he took them to Fresno Community Hospital where they were examined by the emergency medical staff.

Since most of the symptoms had abated by this time, they were not treated, although blood samples were taken for cholinesterase determination (Table 1). Dr. Sylvester Bryan, the examining physician, informed the Fresno County Agricultural Commissioner's staff of the incident. They notified the appropriate persons in the Department of Food and Agriculture (DFA) and of the Fresno Project staff.

At the request of Dr. Keith Maddy, Arcadio Viveros assisted their investigator, Ms. Kim Hentschel, to interview the crew members and to get the remaining crew members to consent to a cholinesterase determination (Table 1). It was determined that they had only recently come from Mexico and this had been their first job. In fact, Mr. Belluomini had loaned them the money to pay their "coyote".

DFA investigators determined the vineyard's spray history (Table 2) and collected leaf samples for residue determinations (Table 3). Based on these results, the re-entry date was extended an additional 21 days (September 29).

On September 27, at the request of DFA, we persuaded three of the five crew members, including the two that were ill, to consent to a second cholinesterase determination. At that time, [REDACTED] reported to Arcadio Viveros that he still felt ill and was having vision problems. Although more than three weeks had elapsed, his cholinesterase level was still low (Table 1). He decided to return to Mexico the next day.

Mr. Andreotti was given permission to harvest his crop on September 30, and we were requested by DFA to attempt to persuade the crew to consent to be monitored for cholinesterase levels. Only one, [REDACTED] consented. While his plasma and RBC cholinesterase levels remained within the normal range, his RBC level dropped 30% below his pre-exposure level. He denied any signs or symptoms attributable to pesticide exposure.

Table 1. Cholinesterase levels in the blood of grape pickers, Andreotti Vineyard, September 1974

A. Fresno Community Hospital (pH Stat)

| <u>Name</u> | | 9/4 | <u>Date</u> | |
|--------------|--------|-------|-------------|------|
| | | | 9/5 | 9/27 |
| [REDACTED] | RBC | .38 | .37 | .22 |
| | Plasma | .32 | .48 | .37 |
| [REDACTED] | RBC | .25 | .29 | .27 |
| | Plasma | .29 | .41 | .47 |
| [REDACTED] | RBC | -- | .36 | .44 |
| | Plasma | -- | .35 | .54 |
| [REDACTED] | RBC | -- | .33 | -- |
| | Plasma | -- | .56 | -- |
| [REDACTED] | RBC | -- | .62 | -- |
| | Plasma | -- | .62 | -- |
| Normal Range | RBC | .39 - | 1.02 | |
| | Plasma | .44 - | 1.63 | |

B. Carlson Medical Laboratory

| <u>Name</u> | | 9/27 | <u>Date</u> | | |
|--------------|--------|--------------------------|-------------|------|------|
| | | | 9/30 | 10/3 | 10/8 |
| [REDACTED] | RBC | 2.4 | -- | -- | -- |
| | Plasma | 1.0 | -- | -- | -- |
| [REDACTED] | RBC | 7.8 | -- | -- | -- |
| | Plasma | 1.6 | -- | -- | -- |
| [REDACTED] | RBC | 4.7 | -- | -- | -- |
| | Plasma | 1.5 | -- | -- | -- |
| [REDACTED] | RBC | -- | 10.2 | 8.0 | 7.2 |
| | Plasma | -- | 2.6 | 2.3 | 2.2 |
| Normal Range | RBC | 7.0 - 18.0 μ /ml/min | | | |
| | Plasma | 1.9 - 3.8 μ /ml/min | | | |

Table 2. Pesticides and rates of application to Andreotti Vineyard, 1974.

| Pesticide | Date Applied | Application Rate |
|--------------|--------------|------------------|
| Zolone W. P. | June 26, 27 | 10 lbs/acre |
| Guthion E.C. | August 6 | 2 qts/acre |

Table 3. Pesticide residues (p.p.m.) on surface of grape leaves collected in Andreotti Vineyard, 1974.

| Date Collected | Pesticide | |
|----------------|---------------|----------------|
| | <u>Zolone</u> | <u>Guthion</u> |
| September 6 | 54 | 26 |
| September 12 | 75 | 47 |
| September 27 | 41.5 | 14.9 |

Table 4. Pesticide residues (p.p.m.) on surface of grape leaves collected in Belluomini Vineyard, 1974.

| Date Collected | Pesticide | |
|--------------------------------------|---------------|------------------|
| | <u>Zolone</u> | <u>Guthion *</u> |
| September 6 | None | Trace (1-3) |
| September 12 | None | 9.6 |
| *Applied August 1, 1974 (2 qts/acre) | | |

Table 5. Maximum and minimum temperatures and departure from normal,
Fresno Air Terminal, August 1974, Temperature: °F.

| Date | Maximum | Minimum | Departure from Normal |
|------|---------|---------|-----------------------|
| 1 | 103 | 67 | 5 |
| 2 | 104 | 70 | 7 |
| 3 | 103 | 72 | 8 |
| 4 | 95 | 71 | 3 |
| 5 | 98 | 68 | 3 |
| 6 | 100 | 70 | 5 |
| 7 | 100 | 71 | 7 |
| 8 | 96 | 59 | -1 |
| 9 | 96 | 62 | 0 |
| 10 | 97 | 65 | 2 |
| 11 | 97 | 65 | 2 |
| 12 | 94 | 63 | 0 |
| 13 | 91 | 59 | -4 |
| 14 | 91 | 57 | -4 |
| 15 | 94 | 59 | -1 |
| 16 | 94 | 57 | -2 |
| 17 | 94 | 57 | -2 |
| 18 | 94 | 60 | -1 |
| 19 | 88 | 55 | -6 |
| 20 | 90 | 54 | -6 |
| 21 | 95 | 59 | -1 |
| 22 | 99 | 61 | 3 |
| 23 | 101 | 63 | 5 |
| 24 | 102 | 65 | 7 |
| 25 | 99 | 65 | 5 |
| 26 | 99 | 61 | 3 |
| 27 | 97 | 63 | 3 |
| 28 | 92 | 60 | -1 |
| 29 | 93 | 59 | -1 |
| 30 | 91 | 58 | -2 |
| 31 | 94 | 59 | 1 |

Andreotti Vineyard Pesticide Episode

Appendix of Data
from Records of
California Department of Food and Agriculture

STATE OF CALIFORNIA
DEPARTMENT OF FOOD AND AGRICULTURE
Chemistry Laboratory Services

Rush

REQUEST FOR ANALYSIS AND REPORT OF ANALYSIS
ON MATERIALS SUBMITTED BY
COLLABORATING PUBLIC AGENCIES

NOTICE: This form will be returned to you. Please type or print your address legibly with black ink and fill out form as completely as possible.

INFORMATION NO. 43982

Date Received 9/6/74
(For Laboratory Use Only)

Name Kim Hentschel
Number A272 Street _____
City Santa State _____ Zip _____
(Please use address of collaborating agency only)

cc: DeLano
Kalstrom (2)
Voigt
Strickler
Maddy
Schleicher

Consent

Description of sample 100 grape leaf punches
Identification marks #138 9-6 Guthrie dibromo, sevin
Source of sample Fresno Co. Billuonimi
Detailed description of problem Workers ill after picking

I hereby certify that the analysis requested is necessary in connection with matters relating to my official duties.

By K Hentschel

Agency ACF

County _____ Date _____

State accurately analysis required

*Guthrie
dibromo
sevin*

Laboratory Findings

| | | |
|----------------------------|--|---|
| <i>Guthrie</i> | <i>Surface</i> trace \approx 1-3ppm | <i>penetrated</i> approx 0.24ppm 0.24ppm |
| <i>phosalone</i> | trace \approx 0.7ppm | trace trace $<$ 0.1ppm |
| <i>phosalone oxone</i> | 0 | 0 |
| | | |
| | | |

Peter L Schleicher

Chemist

9/30/74

Date

STATE OF CALIFORNIA
DEPARTMENT OF FOOD AND AGRICULTURE
Chemistry Laboratory Services

① Lori
② Kim
~~RUSH~~

REQUEST FOR ANALYSIS AND REPORT OF ANALYSIS
ON MATERIALS SUBMITTED BY
COLLABORATING PUBLIC AGENCIES

NOTICE: This form will be returned to you. Please type or print your address legibly with black ink and fill out form as completely as possible.

INFORMATION NO. 43883
Date Received SEP 6 1974
(For Laboratory Use Only)

Name Kim Heutsche
Number Rm A272 Street
City Sacto State Zip
(Please use address of collaborating agency only)

cc: DeLano Maddy
Kalstrom (2)
Voigt
Strickler
Curren

Description of sample 100 grape leaf punches

Identification marks 137 9-6 Guthrie

Source of sample Fusuo Co. - Andretti

Detailed description of problem works ill after picking
analyse for guthrie

I hereby certify that the analysis requested is necessary in connection with matters relating to my official duties.

By K Heutsche

Agency ACF

County _____ Date _____

State accurately analysis required

Laboratory Findings

Surface 26 ppm
Guthrie's method 4.6 ppm

Phosalone Surface 54. ppm
penetrated 25.5 ppm

Phosalone oxone
surface 1 to 3 ppm
penetrated ± 2 ppm

Peter L Schlocher
Chemist
9/10/74
Date

Guthrie

STATE OF CALIFORNIA
DEPARTMENT OF FOOD AND AGRICULTURE
Chemistry Laboratory Services

REQUEST FOR ANALYSIS AND REPORT OF ANALYSIS
ON MATERIALS SUBMITTED BY
COLLABORATING PUBLIC AGENCIES

Samples punched 9/26

NOTICE: This form will be returned to you. Please type or print your address legibly with black ink and fill out form as completely as possible.

INFORMATION NO. 44124
Date Received 9/27/74
(For Laboratory Use Only)

Name Lore Peterson
Number _____ Street _____
City _____ State _____ Zip _____
(Please use address of collaborating agency only)

001 Delano *Conest*
Kal-tron
Volgt
Strickler
Schlocker
Maddy

Description of sample 80 punches grape leaves
Identification marks _____
Source of sample ADOLPH ANDROETTI *blat*
Detailed description of problem Guthion and Zolone

I hereby certify that the analysis requested is necessary in connection with matters relating to my official duties.
By Lore Peterson
Agency Ag Chem and Fed
County _____ Date 9/27

State accurately analysis required
Guthion dislodgeable
11 oxone
Zolone - same

| Laboratory Findings | |
|---------------------|----------------------------|
| Surface | Penetrated |
| Guthion | 14.9 ppm \pm 3.9 |
| Guthion oxone | <u>unable to determine</u> |
| Phosalone | 41.5 ppm 10.3 ppm |
| Phosalone oxone | \pm 3 ppm \pm 2 ppm |
| P.L. Schlocker | |
| Chemist | |
| 9/27/74 | |
| Date | |

STATE OF CALIFORNIA
DEPARTMENT OF FOOD AND AGRICULTURE
Chemistry Laboratory Services

REQUEST FOR ANALYSIS AND REPORT OF ANALYSIS
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COLLABORATING PUBLIC AGENCIES

NOTICE: This form will be returned to you. Please type or print your address legibly with black ink and fill out form as completely as possible.

INFORMATION NO. 43922
Date Received 9/12/74
(For Laboratory Use Only)

Name K. Deutschel
Number A272 Street 5-2742
City Sacto State _____ Zip _____
(Please use address of collaborating agency only)

cc: DeLano Conrad
Kalstrom (2)
Voigt
Strickler
Knaack
~~Graham~~ Schlarcker

Description of sample Grape leaves
Identification marks ① Deutschel 9-11-74 Billuonemi
Source of sample _____
Detailed description of problem worker illnesses

I hereby certify that the analysis requested is necessary in connection with matters relating to my official duties.

By K. Deutschel
Agency ACF
County _____ Date _____

State accurately analysis required

Cation
Dibrom
swen
dis lode.
o penetrated

Laboratory Findings

| | Surface | Penetrated |
|------------------------|----------------|----------------|
| <u>guthers</u> | <u>9.6 ppm</u> | <u>1.5 ppm</u> |
| <u>phthalene</u> | <u>○</u> | <u>○</u> |
| <u>phthalene Oxide</u> | <u>○</u> | <u>○</u> |
| | | |
| | | |

P.L. Schlocher
Chemist
9/30/74
Date

STATE OF CALIFORNIA
DEPARTMENT OF FOOD AND AGRICULTURE
Chemistry Laboratory Services

REQUEST FOR ANALYSIS AND REPORT OF ANALYSIS
ON MATERIALS SUBMITTED BY
COLLABORATING PUBLIC AGENCIES

NOTICE: This form will be returned to you. Please type or print your address legibly with black ink and fill out form as completely as possible.

INFORMATION NO. 43923
Date Received 9/12/74
(For Laboratory Use Only)

Name R. Deutschel
Number A 272 Street 5-2742
City _____ State _____ Zip _____
(Please use address of collaborating agency only)

cc: DeLano Conus
Kalstrom (2)
Voigt
Strickler
Knealy
~~diagram~~ Schlorer

Description of sample Grape leaves
Identification marks ② Deutschel Andrethi
Source of sample grape vineyard
Detailed description of problem worker illnesses

I hereby certify that the analysis requested is necessary in connection with matters relating to my official duties.

By R. Deutschel

Agency ACF

County _____ Date _____

State accurately analysis required

Catkins

Zolond

dislodged

penetrated

| | Laboratory Findings | |
|------------------------|---------------------|-------------------|
| | Surface | <u>penetrated</u> |
| <u>guthrie</u> | 47 ppm | 5.8 ppm |
| <u>phthalate</u> | 75 ppm | 14.8 ppm |
| <u>phthalate oxide</u> | ± 5 ppm | 1.5 ppm |

P. L. Schlorer

Chemist

9/27/74

Date

STATE OF CALIFORNIA
DEPARTMENT OF FOOD AND AGRICULTURE
Chemistry Laboratory Services

REQUEST FOR ANALYSIS AND REPORT OF ANALYSIS
ON MATERIALS SUBMITTED BY
COLLABORATING PUBLIC AGENCIES

NOTICE: This form will be returned to you. Please type or print your address legibly with black ink and fill out form as completely as possible.

INFORMATION NO. 43924

Date Received 9/12/74

(For Laboratory Use Only)

Name Hentschel

Number A272 Street 5-2742

City _____ State _____ Zip _____

(Please use address of collaborating agency only)

cc: DeLano
Kalstrom (2)
Voigt
Strickler

K. Schloker
~~W. Schloker~~

Description of sample grapes

Identification marks ③ Hentsche Andretti

Source of sample vineyard.

Detailed description of problem worker illnesses

I hereby certify that the analysis requested is necessary in connection with matters relating to my official duties.

By Hentschel

Agency ACF

County _____ Date _____

State accurately analysis required

Guthrie
Zolone
dislodge
& penetrated

Laboratory Findings

| | surface | penetrated |
|--------------|---------|------------|
| Zolone | 0.3 ppm | 0.3 ppm |
| Zolone oxone | ± 0.16 | 0.025 |
| Guthrie | 1.5 ppm | 0.3 ppm |

P. L. Schloker

Chemist

9/27/74

Date

STATE OF CALIFORNIA
DEPARTMENT OF FOOD AND AGRICULTURE
Chemistry Laboratory Services

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INFORMATION NO. 44124

Date Received 9/27/74

(For Laboratory Use Only)

Name Lori Peterson
Number Ag Chem Street 1000
City San Jose State CA Zip 95128

001 Delano
Kalatrum
Voigt
Strickler
Schlocher
Maddy

(Please use address of collaborating agency only)

Description of sample 80 punches grape leaves

Identification marks -

Source of sample ADOLPH ANDROETTI

Detailed description of problem Guthion and Zolone

I hereby certify that the analysis requested is necessary in connection with matters relating to my official duties.

By Lori Peterson

Agency Ag Chem and Fred

County San Jose

Date 9/27

State accurately analysis required

Guthion dislodgeable
oxone

Zolone - same

Laboratory Findings

Surface | Penetrated

14.9 ppm ± 3.9

unable to determine

41.5 ppm 10.3 ppm

± 3 ppm ± 2 ppm

P.L. Schlocher

Chemist

Date

9/27/74

| GLUCOSE | | PLUS FOUR | PROTEIN |
|---------------|--|------------------------|-----------------------|
| 65-110 mg% | | | 6.0-8.0 gms% |
| BUN | | 1 ₄ BY COL. | ALBUMIN |
| 10-20 mg% | | 3.0-7.5 mcg% | 3.5-5.0 gms% |
| CREATININE | | CHOLESTEROL | GLOBULIN |
| 0.9-2.0 mg% | | | 2.0-3.9 gms% |
| AMYLASE | | URIC ACID | THYMOL TURBIDITY |
| 65-150 UNITS | | 2.3-6.0 mg% | 0-5 UNITS |
| LDH. TOTAL | | PHOSPHORUS | SODIUM |
| 200-500 UNITS | | 2.5-4.8 mg% | 135-145 mEq./L |
| SGOT | | BILIRUBIN TOTAL | POTASSIUM |
| 10-40 UNITS | | 0.2-1.0 mg% | 3.5-5.0 mEq./L |
| ACID PHOS | | BILIRUBIN DIRECT | CHLORIDE |
| 0.5-6.0 UNITS | | LESS 0.25 mg% | 95-105 mEq./L |
| SGPT | | BILIRUBIN INDIRECT | CO ₂ CONT. |
| 5-30 UNITS | | | 24-32 mEq./L |
| ALK. PHOS. | | IRON | (CHOLINESTERASE) |
| 4-17 UNITS | | 65-175 mcg% | |
| CALCIUM | | IBC | RBC |
| 9.0-11.5 mg% | | 250-420 mcg% | 39-1.02 <i>62</i> |
| CEPH FLOC | | SATURATION | PLASMA |
| NEG-1+ 48hrs | | 20-25 % | 44-1.63 <i>62</i> |

512582

2775

Dr. Kinder

| | | | | |
|------------------|------------|-------------------------|--------------|----------------------------------|
| pH | 7.35-7.45 | BASE EXCESS | REQ. | 74 <i>2 58 SEP 10</i> |
| pCO ₂ | 35-45 mmHg | CO ₂ CONTENT | RECVD. | 74 <i>2 58 SEP 10</i> |
| PO ₂ | 95 mmHg | % SATURATION | SPEC. | 74 <i>2 58 SEP 10</i> |
| CPK | 5-50 UNITS | T ₄ UPTAKE | OBTAIN | DATE REPORTED <i>1110 SEP 13</i> |
| | | | TECHNOLOGIST | <i>h</i> |

1 CHEMISTRY 462

FRESNO COMMUNITY HOSPITAL

CHART

78198

| GLUCOSE | | PLUS FOUR | PROTEIN |
|---------------|--|------------------------|-----------------------|
| 65-110 mg% | | | 6.0-8.0 gms% |
| BUN | | 1 ₄ BY COL. | ALBUMIN |
| 10-20 mg% | | 3.0-7.5 mcg% | 3.5-5.0 gms% |
| CREATININE | | CHOLESTEROL | GLOBULIN |
| 0.9-2.0 mg% | | | 2.0-3.9 gms% |
| AMYLASE | | URIC ACID | THYMOL TURBIDITY |
| 65-150 UNITS | | 2.3-6.0 mg% | 0-5 UNITS |
| LDH. TOTAL | | PHOSPHORUS | SODIUM |
| 200-500 UNITS | | 2.5-4.8 mg% | 135-145 mEq./L |
| SGOT | | BILIRUBIN TOTAL | POTASSIUM |
| 10-40 UNITS | | 0.2-1.0 mg% | 3.5-5.0 mEq./L |
| ACID PHOS | | BILIRUBIN DIRECT | CHLORIDE |
| 0.5-6.0 UNITS | | LESS 0.25 mg% | 95-105 mEq./L |
| SGPT | | BILIRUBIN INDIRECT | CO ₂ CONT. |
| 5-30 UNITS | | | 24-32 mEq./L |
| ALK. PHOS. | | IRON | (CHOLINESTERASE) |
| 4-17 UNITS | | 65-175 mcg% | |
| CALCIUM | | IBC | RBC |
| 9.0-11.5 mg% | | 250-420 mcg% | 39-1.02 <i>33</i> |
| CEPH FLOC | | SATURATION | PLASMA |
| NEG-1+ 48hrs | | 20-25 % | 44-1.63 <i>56</i> |

512581

Dr. Kinder

2777

| | | | | |
|------------------|------------|-------------------------|--------------|-----------------------|
| pH | 7.35-7.45 | BASE EXCESS | REQ. | 74 <i>2 58 SEP 10</i> |
| pCO ₂ | 35-45 mmHg | CO ₂ CONTENT | RECVD. | 74 <i>2 58 SEP 10</i> |
| PO ₂ | 95 mmHg | % SATURATION | SPEC. | 74 <i>2 58 SEP 10</i> |
| CPK | 5-50 UNITS | T ₄ UPTAKE | OBTAIN | DATE REPORTED |
| | | | TECHNOLOGIST | <i>h</i> |

1 CHEMISTRY 462

FRESNO COMMUNITY HOSPITAL

CHART

78197

| GLUCOSE | | PLUS FOUR | PROTEIN |
|---------------|--|------------------------|-----------------------|
| 65-110 mg% | | | 6.0-8.0 gms% |
| BUN | | 1 ₄ BY COL. | ALBUMIN |
| 10-20 mg% | | 3.0-7.5 mcg% | 3.5-5.0 gms% |
| CREATININE | | CHOLESTEROL | GLOBULIN |
| 0.9-2.0 mg% | | | 2.0-3.9 gms% |
| AMYLASE | | URIC ACID | THYMOL TURBIDITY |
| 65-150 UNITS | | 2.3-6.0 mg% | 0-5 UNITS |
| LDH. TOTAL | | PHOSPHORUS | SODIUM |
| 200-500 UNITS | | 2.5-4.8 mg% | 135-145 mEq./L |
| SGOT | | BILIRUBIN TOTAL | POTASSIUM |
| 10-40 UNITS | | 0.2-1.0 mg% | 3.5-5.0 mEq./L |
| ACID PHOS | | BILIRUBIN DIRECT | CHLORIDE |
| 0.5-6.0 UNITS | | LESS 0.25 mg% | 95-105 mEq./L |
| SGPT | | BILIRUBIN INDIRECT | CO ₂ CONT. |
| 5-30 UNITS | | | 24-32 mEq./L |
| ALK. PHOS. | | IRON | (CHOLINESTERASE) |
| 4-17 UNITS | | 65-175 mcg% | |
| CALCIUM | | IBC | RBC |
| 9.0-11.5 mg% | | 250-420 mcg% | 39-1.02 <i>36</i> |
| CEPH FLOC | | SATURATION | PLASMA |
| NEG-1+ 48hrs | | 20-25 % | 44-1.63 <i>35</i> |

512583

Dr. Kinder

2776

| | | | | |
|------------------|------------|-------------------------|--------------|----------------------------------|
| pH | 7.35-7.45 | BASE EXCESS | REQ. | 74 <i>2 58 SEP 10</i> |
| pCO ₂ | 35-45 mmHg | CO ₂ CONTENT | RECVD. | 74 <i>2 58 SEP 10</i> |
| PO ₂ | 95 mmHg | % SATURATION | SPEC. | 74 <i>2 58 SEP 10</i> |
| CPK | 5-50 UNITS | T ₄ UPTAKE | OBTAIN | DATE REPORTED <i>1110 SEP 13</i> |
| | | | TECHNOLOGIST | <i>h</i> |

1 CHEMISTRY 462

FRESNO COMMUNITY HOSPITAL

CHA

78198

DEPARTMENT OF FOOD AND AGRICULTURE



1220 N Street
Sacramento
95814

September 16, 1974

Mr. Adolph Andreitti
14645 West Shields Avenue
Kerman, California 93630

Dear Mr. Andreitti

This is to confirm the order given you orally by Kimber Hentschel, Agricultural Inspector on September 10 to post your grape vineyard on the south side of Shields Avenue between Vineland and Madera Avenue with signs stating somewhat as follows: "Danger, treated with pesticides, stay out until September 30, 1974."

This quarantine was based upon medical information developed on the five pickers who entered the vineyard on September 3 and on pesticide residue information based upon our tests on grapes and foliage of the vineyard. This quarantine is in accordance with Title 3 Agriculture, Chapter 4 Plant Industry, Subchapter 1 Chemistry, Group 2 Economic Poisons, Article 23, Section 2480(d) of the California Administrative Code.

In a few days I will contact you personally to discuss with you the possibilities of reentering this vineyard sooner if certain precautions are taken.

Sincerely

Keith T. Maddy, D.V.M., M.P.H.
Staff Toxicologist
Agricultural Chemicals and Feed

cc Bingham
Hillis
Fresno County Agricultural Commissioner
Enos
Betts
Area Coordinator
Kohn
Keith -
KTM/9-H/4

DEPARTMENT OF HEALTH

5545 East Shields Avenue
Fresno, California 93727



September 17, 1974

Ms. Kimber Hentschel
Agricultural Chemicals and Feed
Department of Food and Agriculture
1220 "N" Street
Sacramento, CA 95814

Dear Kim:

Enclosed are copies of the medical records for [REDACTED] and [REDACTED]

I would appreciate any information you have on the chemicals and applicators and a brief summary of your interview with the entire crew. I did obtain the cholinesterase results from the Fresno Community Hospital.

I would also like a copy of the residue data when that becomes clarified.

See you next week.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Dick'.

Richard N. Lyness, Ph.D.
Research Specialist
COMMUNITY STUDIES ON PESTICIDES

RNL/cw

Enclosures

Maddy
Kim

John C. Hillis, Chief
Agricultural Chemicals and Feed

September 17, 1974

Sacramento

- D. W. Dean, Program Supervisor
Agricultural Chemicals and Feed

Worker Illness on Reentry of Vineyard Treated with Guthion

On September 5, 1974 Bob Emparan, Fresno County Agricultural Commissioner's Office, reported that two pickers harvesting grapes in a vineyard in Kerman, California, became ill.

The vineyard had been treated with Zolone on July 26 and with Guthion on August 6, 1974. Five workers entered the vineyard for harvest operations on September 3, 1974. Of the five, two workers became sick that day. The workers were taken by the labor contractor, Victor Belluomini (209-843-2407), to the emergency ward of Fresno Community Hospital for treatment and blood testing. The tests were suggestive of organophosphate poisoning. Blood test on the other three workers indicated that at least two had been exposed to organophosphates.

According to the information received from Mrs. Belluomini, the workers were not hospitalized and they are feeling better. Mr. Belluomini was asked to supply the names of the workers to Mr. Emparan. The owner of the vineyard is Mr. Adolph Andreitti (209-846-9565) of 14645 West Shield Avenue, Kerman, California. Mrs. Andreitti said the grapes should wait another week or two for harvest operations. Our staff obtained samples of the grape leaves for analysis of dislodgeable residues. Residues of Guthion and Zolone as well as Zolone oxone have been found.

A quarantine has been placed on the vineyard and the residues are under continuing study. Reentry may be permitted under medical supervision the week of September 23, 1974.

cc C. B. Christensen
D. Bingham
R. Roberson
E. Kahn, Health Department -
K. T. Maddy -
T. Corn -
Fresno District Office--

KTM/9-J/1

MEDICAL RECORD

Male, age 38 (9/19/35)

Married: [REDACTED] same address.

Brought to Emergency (Fresno Community Hospital) by car, walking 10:43 a.m., September 4, 1974.

Employer states patient has been picking grapes the past two days in field that was sprayed with Guthion. The patient had abdominal cramps, nausea, vomiting, dizziness, and diarrhea last night. He continues to be dizzy, but other symptoms have subsided.

Physical examination: Pupils equally reactive to light; chest and lungs clear.

Temperature, 99; pulse, 92; respiration, 20; blood pressure, 140/88.

Diagnosed organophosphate (Guthion) intoxication.

| Cholinesterase Level (pH Stat) | | | |
|--------------------------------|------------|------------|--------------|
| | 9/4 (1300) | 9/5 (0850) | Normal Range |
| RBC | 0.38 | 0.37 | 0.39 - 1.02 |
| Plasma | 0.32 | 0.48 | 0.44 - 1.63 |

Discharged ambulatory to employer.

RNL/cw
9/17/74

MEDICAL RECORD

Male, age 35 (3/22/38)

13405 West Shaw, Kerman, CA 93630

Married: [REDACTED] same address.

Brought to Emergency (Fresno Community Hospital) by car, walking 11:20 a.m., September 4, 1974.

Employer states patient has been working for past two days in grapes that were sprayed with insecticide. The patient complains of diarrhea, dizziness, nausea, vomiting last night. He still complains of dizziness, but all other symptoms subsided.

Eyes equally reactive to light; abdomen and lymph nodes negative; heart, regular rhythm; chest, lungs clear; abdomen, no masses or tenderness; slight hyperactive bowel sounds.

Temperature, 98.4; pulse, 64; respiration, 24; blood pressure, 166/80.

Cholinesterase Level (pH Stat)

| | 7/4 (1302) | 7/5 (0850) | Normal Range |
|--------|------------|------------|--------------|
| RBC | 0.25 | 0.29 | 0.39 - 1.02 |
| Plasma | 0.29 | 0.41 | 0.44 - 1.63 |

Discharged ambulatory to employer.

RNL/cw
9/17/74

Memorandum

Note Change >

To : John C. Hillis, Chief
Agricultural Chemicals and Feed

Date: November 13, 1974

Place: Sacramento

From : Department of Food and Agriculture - D. W. Dean, Program Supervisor
Agricultural Chemicals and Feed

Subject: Androetti Worker Illness Incident - Hentschel Report of October 22, 1974

SUMMARY

1. Two of five grape harvesters were hospitalized with organic phosphate symptoms and low cholinesterase levels. Although not apparently ill, the other three workers five days later were tested and found with cholinesterase at the lower end of the normal range.
2. Follow-up grape leaf samples showed these workers were in fields with phosalone and Guthion residue at levels that based on our other data and tests would not be expected to cause illness if either was present as a single residue on the leaves (we do not have data to evaluate the combination).

COMMENTS

Apparently, all five harvesters had low cholinesterase levels when they went into the vineyard and the additional low level of organic phosphate residues caused two of them to become ill. This would indicate prior exposure or continuing low level exposure, as might be caused by wearing contaminated clothing or shoes.

In this case we were unable to pinpoint the cause of the field worker illnesses; we see no additional leads to follow up and therefore consider the investigation closed.

D. W. Dean

Memorandum

To : Keith Maddy, Staff Toxicologist
Agricultural Chemicals and Feed

Date: October 22, 1974

Place: Sacramento

From : Department of Food and Agriculture - Kimber Hentschel, Agricultural Inspector
Agricultural Chemicals and Feed

Subject:

On September 5, 1974, I was contacted by Robert Emparin of the Fresno County Agricultural Commissioner's office concerning a report of field worker illnesses near Kerman, California. A Mrs. Adolf Androetti notified the Kerman district office that two men who had been harvesting their grapes and had become ill. Their vineyard was at 14645 W. Shields Avenue, Kerman, California; their telephone number was 846-9565.

The two men belonged to a crew consisting of five workers who had within the previous month come to the Fresno area (possibly from Mexico). They had been hired by Mr. Victor Belluomini of 13405 W. Shaw Avenue, Kerman, California, to work in his vineyard. His telephone number was 843-2407. This was the first job for four of the crew members. The fifth, [REDACTED] had been harvesting plums in Nevada for one week prior to harvesting for Belluomini. The men had harvested grapes in Belluomini's vineyard from August 22 to September 2. Mr. V. Belluomini loaned the crew to his brother-in-law, Mr. A. Androetti to harvest grapes in Androetti's vineyard about two miles southwest of Belluomini's vineyard. On September 4, after two days of harvesting, two workers, [REDACTED] and [REDACTED] were taken to a hospital in Fresno because they became ill.

The two workers had begun to feel sick on the first day of picking in Mr. Androetti's vineyard. The first and second day [REDACTED] and [REDACTED] experienced blurred vision, nausea, diarrhea and dizziness. Upon their admission to the hospital on the morning of September 4, they were still dizzy but other symptoms had subsided. On September 4 and 5, cholinesterase tests by the Michel method were made and the results were reported as follows:

September 4

September 5

RBC

Plasma

RBC

Plasma

[REDACTED] 0.38

0.32

0.37

0.48

[REDACTED] 0.25

0.29

0.29

0.41

Normal values: RBC 0.39 - 1.02
Plasma 0.44 - 1.63

Keith Maddy
Page Two
October 22, 1974

The Androetti vineyard had received the following pesticide applications within the last two months. This information was obtained from James Scharf, the Pest Control Operator in Kerman who did the work.

| <u>Date</u> | <u>Pesticide</u> | <u>Rate/Acre</u> |
|-------------|-----------------------|------------------|
| July 26,27 | Zolone WP (phosalone) | 10 lbs. |
| Aug. 6 | Guthion | 2 quarts |
| Aug. 6 | Nutra-aid | 2 gallons |

The Belluomini field had received the following applications of pesticides:

| <u>Date</u> | <u>Pesticide</u> | <u>Rate/Acre</u> |
|-------------|------------------|------------------|
| Aug. 1 | Guthion | 2 quarts |
| Aug. 15 | Dibrom-Sevin | 20 lbs. |

In September samples of leaves were taken from the two fields. The results were as follows for dislodgable residues of pesticides:

| | <u>Date of Sampling</u> | <u>Phosalone</u> ppm | <u>Phosalone Oxone</u> ppm | <u>Guthion</u> ppm | <u>Guthion Oxone</u> ppm |
|------------|-------------------------|-------------------------|-------------------------------|-----------------------|-----------------------------|
| Androetti | Sept. 6 | 54 | 2 | 26 | 0 |
| | Sept. 27 | 52 | 5 | 19 | 0 |
| Belluomini | Sept. 6 | trace | 0 | 2 | 0 |
| | Sept. 12 | 0 | 0 | 10 | 0 |

On September 10, the Androetti field was quarantined by me for our Department on orders from you for 21 days with written instructions that no further harvesting be done during the quarantine. At the same time, the other three workers who had harvested grapes in the Androetti field but who had not shown clinical illness had blood samples drawn for cholinesterase tests. The remaining three workers were [REDACTED], [REDACTED], and [REDACTED]. Their cholinesterase test results by the Michel method were:

| | RBC | Plasma |
|------------|------|--------|
| [REDACTED] | 0.62 | 0.62 |
| [REDACTED] | 0.33 | 0.56 |
| [REDACTED] | 0.36 | 0.35 |

All three had test results in the lower end of the normal range. The five employees had returned to continue harvesting in Mr. Belluomini's field.

Keith Maddy
Page Three
October 22, 1974

During the quarantine period, [REDACTED] continued to pick in Belluomini's vineyard until the last week of the quarantine, then he went to Marvin Gammel's vineyard to work (leaf samples were taken from Gammel's vineyard); no significant pesticide residues were found.

[REDACTED] worked with raisins at Belluomini's vineyard picking up trays but he had no leaf exposure. [REDACTED] worked with raisins at Belluomini's vineyard until he was fired; then he worked for Ted Scheidt harvesting grapes.

On Monday, September 30, Dr. Richard Lyness and Arcadio Viveros of the State Health Department, and Lori Peterson of our Department returned to Victor Belluomini's vineyard. They talked to the workers who were planning to reenter Adolf Androetti's vineyard the following day.

The vineyard was scheduled for release from quarantine on October 1, 1974. Six workers were scheduled by Mr. Beluomini to harvest the grapes. Of this harvesting crew, five were not the same people who had originally begun working in the Androetti vineyard. [REDACTED], the one original worker, was told by us through an interpreter in the presence of Mr. Belluomini that he should not work in the field because of his low cholinesterase level even though the pesticide residue level was quite low.

Arcadio, acting as interpreter, talked with the workers and tried to convince them to permit a blood sample to be drawn without cost to them. He carefully explained that it would be quite useful for them to have a blood test taken before they entered the vineyard because of the previous illnesses that had occurred. At the same time we believed that the possibility of poisoning was quite low. Of the five men and one elderly woman, only one man ([REDACTED]) agreed to permit blood samples to be drawn. [REDACTED] was the youngest and appeared to be the healthiest. The others refused to have a blood sample taken. They all seemed to associate the extraction of blood from their body with sickness and superstitious fears. Mr. Belluomini believed that if he required the blood samples drawn, the workers would quit.

The elderly woman appeared very strong, alert, and healthy. The three men appeared to be in poor physical condition and they were wearing clothes that had obviously not been washed for quite some time. All were cautioned that they should work in clean clothing daily.

The Androetti vineyard was harvested by these workers on October 1, 2, and 3. [REDACTED] blood was tested for cholinesterase by the ~~Michael~~ ^{Ellman} method with the following results:

| <u>Date</u> | <u>Plasma</u> | <u>RBC</u> |
|-------------|---------------|------------|
| Sept. 30 | 2.58 | 10.11 |
| Oct. 3 | 2.28 | 8.00 |
| Oct. 7 | 2.20 | 7.20 |

Keith Maddy
Page Four
October 22, 1974

No clinical illnesses occurred in the workers during this second entry to the vineyard one month later than the first entry.

It is somewhat difficult to determine why workers who entered this vineyard experienced cholinesterase depression. You had advised me that based on other studies the low residue levels of phosalone, guthion and phosalone oxone separately would not be expected to depress cholinesterase. You said that it is possible that the combination of the two pesticides and the oxone in this particular vineyard had the potential for an adverse effect on human cholinesterase.

It is my opinion that the failure to wear clean clothing daily and the obvious absence of bathing very often may have been a major factor in causing this incident. Residues of organophosphate pesticides could have built up in the clothing and on the skin to the point that they had a depressing effect upon cholinesterase even though the residue levels of pesticides on foliage were within ranges which have been considered safe for entry of field workers.